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ANNUAL  
REPORT  
1964

QUEBEC SMELTING &  
REFINING LIMITED

(NO PERSONAL LIABILITY)

MAGNETISM

PROCESSING

FERRO-  
MAGNETICS  
LTD.

(NO PERSONAL LIABILITY)

FERROX  
IRON  
LTD.

(NO PERSONAL LIABILITY)

# 1964 YEAR OF GROWTH

EXPLORATION

DEVELOPMENT

## QUEBEC SMELTING & REFINING LIMITED

(NO PERSONAL LIABILITY)

### JONES SEPARATOR

DEVELOPMENT

COMMERCIAL MACHINES

NEW IRON OXIDE PROCESS

NEW SUBSIDIARY

NEW SUBSIDIARY

### FERRO-MAGNETICS LTD.

(NO PERSONAL LIABILITY)

JONES SEPARATORS  
ELECTROSTATIC SEPARATORS  
MAGNETIC TRAPS  
DRUM SEPARATORS  
MAGNETIC DEVICES

### FERROX IRON LTD.

(NO PERSONAL LIABILITY)

IRON OXIDE SUPERCONCENTRATES  
ELECTRONIC IRON OXIDE  
FERRITES  
ORE TESTING  
CUSTOM ANALYSIS

HEAD OFFICE

MAY 25 1965

Suite 400,  
621 Craig Street West,  
Montreal 3, P.Q.

TRANSFER AGENTS AND REGISTRARS

Eastern & Chartered Trust Company,  
132 St. James St. W.,  
Montreal 1, P.Q.

1901 Yonge St.,  
Toronto 1, Ontario

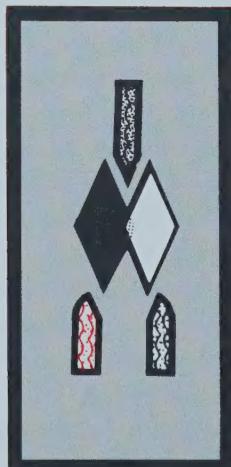
BANKERS

Canadian Imperial Bank of Commerce,  
265 St. James Street West,  
Montreal 1, P.Q.

Royal Bank of Canada,  
360 St. James Street West,  
Montreal 1, P.Q.

**QUEBEC SMELTING & REFINING LIMITED**

(NO PERSONAL LIABILITY)



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Directors, Officers .....	Back Cover



*R. P. Mills*

## *To the Shareholders*

The year has been one of progress and growth. A subsidiary, Ferrox Iron Ltd. completed its new plant at Prescott, Ontario, and is now producing superconcentrates of iron oxide. The present capacity is 20 tons per day, which can easily be increased to 100 tons per day with the installation of additional equipment. Iron powder and hard ferrites are being made on a laboratory scale and when test work is completed, production of both pure iron powder and hard ferrites is contemplated.

The market for the Jones Wet Magnetic Separator is expanding and the large unit with a capacity of 30 tons per hour built for American Metal Climax is installed. A contract has been signed with Stearns-Roger Corporation of Denver, Colorado, for the manufacture and sale of Jones separators of a capacity of three tons or more per hour and the smaller units of up to three tons per hour will be handled by a new subsidiary, Ferro-Magnetics Ltd.

Ferro-Magnetics Ltd. has obtained the exclusive distribution in North America of the products of Rapid Magnetic Limited, one of the oldest companies in the field of magnetic products and a world leader in the manufacture of all kinds of magnetic equipment.

### **Ferrox Iron Ltd.**

The funds for your subsidiary, Ferrox Iron Ltd., have been supplied by Quebec Smelting & Refining with the assistance of two grants made by the Federal Government of a total of \$299,500, payable over a three year period. Expansion of the

facilities for the production of ferrites on a scale of 5 tons per day and the equipment for commercial production of iron powders will require substantial funds during the next year.

Your Directors have approved a Special By-law increasing the capitalization of your company from \$6,000,000 to \$12,500,000 and a change in the par value of the shares from \$1.00 to \$5.00 each. If approved by the Shareholders at the Special and General Meeting, and confirmed by Supplementary Letters Patent, there will then be 1,190,200 shares of a par value of \$5.00 outstanding and 1,309,800 shares available for financing future expansion.

An underwriting to provide additional capital is available, but no commitment will be made until negotiations now underway for additional plant facilities and for Government financing assistance are concluded.

#### **Mining Properties**

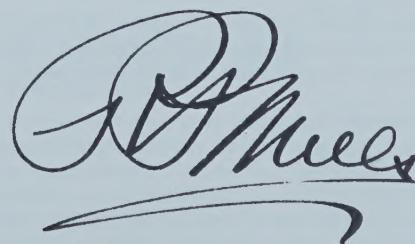
The company's mining properties have been retained and include 40 claims in McKenzie and Roy townships, Chibougamau, the properties in New Brunswick which adjoin those of Brunswick Mining and Smelting, the gold prospect in Urban township, Quebec, as well as claims in Frotet Lake and in New Quebec. While no additional development is planned at present, further investigation is underway on the phosphate mines near Buckingham, Quebec, to upgrade these ores. These include the High Rock, Cap Rock, Little Union and Big Union phosphate properties.

Your Directors wish to express their sincere appreciation to Mr. W. J. D. Stone, Managing Director of Ferrox Iron and Ferro-Magnetics, to Mr. P. D. R. Maltby, Manager of the Ferrox plant at Prescott and to the staff for their loyal service throughout the year.

Your Directors submit for your consideration the Balance Sheet as at December 31, 1964, together with Statement of Development Expenditures, Administrative Expenditures and related statements as examined by Price Waterhouse & Co., Auditors for the company. In addition, there is included Balance Sheet of Ferrox Iron Ltd. as at December 31, 1964, together with Statement of Development and Administrative Expenditures and of Research Expenditures to December 31, 1964.

Annual Meeting of Shareholders and Special General Meeting for consideration of Special By-law "H" will be held at the Windsor Hotel, Montreal, Quebec, on the 30th day of April, 1965. Notice of the Meetings and Proxy forms in case you cannot attend in person are included with the report.

Respectfully submitted on behalf of the Board of Directors,



*President.*

*Montreal, Quebec.  
March 22, 1965.*

# QUEBEC SMELTING & REFINING LIMITED

(NO PERSONAL LIABILITY)

(Incorporated under The Quebec Mining Companies Act  
on November 26, 1947)

Statement I

## BALANCE SHEET—DECEMBER 31, 1964

### ASSETS

#### CURRENT ASSETS:

Cash on hand and in bank.....	\$ 25,329.03
Accounts receivable—	
Ferrox Iron Ltd. (N.P.L.), a subsidiary company.....	\$ 27,000.00
Sundry.....	3,459.48
Investments in listed mining shares (Note I and Schedule A—quoted market value \$63,653.00).....	87,269.29
INVESTMENTS IN SHARES OF UNLISTED MINING COMPANIES (Note I and Schedule B).....	\$ 143,057.80
INVESTMENT—FÉRROX IRON LTD. (N.P.L.), a subsidiary company, at cost (Note 2).....	107,869.16
ADVANCES TO RELATED COMPANIES.....	137,500.00
MORTGAGE RECEIVABLE, less instalments due within one year.....	9,700.00
MINING CLAIMS UNDER DEVELOPMENT LICENCES, MINING LICENCES, OR MINER'S CERTIFICATES (Notes I and 3).....	22,995.32
OPTION ON MINING RIGHTS, Portland West township phosphate properties (Note 4).....	\$ 58,202.92
FIXED ASSETS, at cost:	
Machinery and equipment.....	46,591.87
Less: Accumulated depreciation.....	\$ 10,909.16
INVESTMENT IN JONES WET MAGNETIC SEPARATOR:	8,437.18
Development expenses—net.....	2,471.98
DEFERRED EXPENDITURES:	222.57
Development (Statement II).....	\$ 438,165.10
Administrative (Statement III).....	157,592.27
ORGANIZATION EXPENSES.....	\$ 595,757.37
	3,062.90
	\$ 1,127,431.89

### LIABILITIES AND CAPITAL

6% Demand loan (secured).....	\$ 30,000.00
<b>CAPITAL:</b>	
Capital stock (Note 5)—	
Authorized—	
6,000,000 shares of \$1 par value.....	\$ 6,000,000.00
Issued and fully paid—	
For cash.....	Shares
For net assets of predecessor corporation.....	(\$ 3,128,450.80)
	1,450,611
	1,500,000
	5,950,611
	(\$ 750,000.00)
	(\$ 3,878,450.80)
	Net
	\$ 1,322,160.20
	750,000.00
	\$ 2,072,160.20
Deduct: Cost of mining claims and options abandoned, write-offs and net losses realized on disposal of investments and other assets (Statement IV).....	974,728.31
	1,097,431.89
SIGNED ON BEHALF OF THE BOARD:	
R. P. MILLS, <i>Director.</i>	
J. O. SABOURIN, <i>Director.</i>	
	\$ 1,127,431.89

### NOTES TO FINANCIAL STATEMENTS—DECEMBER 31, 1964

1. The investments in shares of mining companies and the mining rights are valued at cost, except in the case of the shares and mining rights acquired from Quebec Smelting & Refining Corporation in 1948 and where shares were received in consideration of sales of mining rights, which are at valuations determined by the Board of Directors.
2. Certain of the company's interests in the Jones Wet Magnetic Separator, together with one laboratory pilot plant separator, were sold to Ferrox Iron Ltd. (No Personal Liability), a subsidiary company, at cost for \$50,000. This consideration was satisfied by the issue of 100,000 shares of Ferrox Iron. Subsequently 200,000 shares were acquired at a cost of \$100,000 whereof 25,000 were sold to an officer of Ferrox Iron Ltd. (No Personal Liability) resulting in a net addition to the investment of \$87,500.
3. The amount at which the mining rights are recorded does not, and does not purport to, represent their present or future value.
4. The mining rights under option may be acquired by the issue to the vendors of 75,000 shares of a company having an authorized capital of 3,000,000 shares if such is formed to acquire and develop them.
5. During the year 500,000 shares of capital stock were sold for \$80,000 cash.

### AUDITORS' REPORT

To the Directors of

QUEBEC SMELTING & REFINING LIMITED  
(No Personal Liability):

We have examined the balance sheet of Quebec Smelting & Refining Limited (No Personal Liability) as at December 31, 1964 and have obtained all the information and explanations we have required. Our examination included a general review of the accounting procedures and such tests of accounting records and other supporting evidence as we considered necessary in the circumstances.

During the period under review the company wrote off the cost of mining claims abandoned, a considerable number of which mining claims formed parts of blocks of claims, and the development and administrative expenditures applicable thereto (Statement IV) instead of following the former practice of carrying these costs as Mining Rights and as Deferred Expenditures.

In our opinion, and according to the best of our information and the explanations given to us and as shown by the books of the company, the accompanying balance sheet of Quebec Smelting & Refining Limited (No Personal Liability), is properly drawn up so as to exhibit a true and correct view of the state of the affairs of the company as at December 31, 1964 and the results of its operations for the year ended on that date, in accordance with generally accepted accounting principles applied, except for the change referred to above which we approve, on a basis consistent with that of the preceding year.

PRICE WATERHOUSE & CO.  
Chartered Accountants.

**QUEBEC SMELTING & REFINING LIMITED**  
(NO PERSONAL LIABILITY)

Statement II

**DEVELOPMENT EXPENDITURES FROM DATE OF INCORPORATION (NOVEMBER 26, 1947) TO DECEMBER 31, 1964 BY DEVELOPMENT AREAS**

	<i>Expenditures for the year ended December 31, 1964</i>	<i>Costs applicable to mining claims abandoned</i>	<i>Balance at December 31, 1964</i>
Current groups—			
Beresford Townships.....	\$ 1,380.00	\$ 1,380.00	\$123,594.20
McKenzie, L'esperance and Roy Townships.....	352,625.61	229,828.37	178,192.69
New Brunswick.....	177,812.69	—	386.75
New Quebec—townships 1931 and 4953.....	5,566.75	5,180.00	—
Onslow Township.....	1,307.05	816.58	—
Participation in prospecting ventures.....	2,500.00	1,768.90	4,268.90
Phosphate properties Portland West Township.....	120,564.31	81.75	120,646.06
Urban Township.....	43,676.02	113.72	3,741.30
Miscellaneous—prospecting.....	—	4,481.25	3,119.36
Groups of mining claims and options abandoned in prior years (1).....	<u>\$705,432.43</u>	<u>\$7,132.11</u>	<u>\$433,949.26</u>
Depreciation of building and equipment—unallocated.....	77,521.31	77,521.31	—
Total per balance sheet—Statement I.....	<u>\$825,820.33</u>	<u>\$7,132.11</u>	<u>\$438,165.10</u>

(1) This amount includes the capital Cost of mining claims and options abandoned as well as expenditures incurred in their development.

**BY DEVELOPMENT EXPENDITURE ACCOUNTS**

	<i>Expenditures for the year ended December 31, 1964</i>	<i>Balance at December 31, 1964</i>	<i>Balance at December 31, 1964</i>
Assays.....	\$ 9,539.59	\$ 9,539.59	\$ 9,539.59
Commissary.....	34,245.06	\$ 132.93	34,377.99
Depreciation of buildings and equipment.....	42,866.59	—	42,866.59
Diamond drilling.....	296,360.64	—	296,360.64
Engineering.....	10,628.13	84.80	10,712.93
Equipment and maintenance.....	11,165.59	28.38	11,193.97
Geological and engineering salaries.....	5,639.73	—	5,639.73
Geophysical and land surveys.....	54,794.51	10.86	54,805.37
Insurance.....	8,622.35	341.00	8,963.35
Miscellaneous.....	9,855.80	848.10	10,703.90
Participation in prospecting ventures.....	2,500.00	1,768.90	4,268.90
Prospecting.....	9,800.85	210.50	10,011.35
Salaries and wages.....	164,072.08	2,293.61	166,365.69
Supplies.....	29,562.80	(485.63)	29,077.17
Taxes, fees and licenses.....	46,457.48	835.58	47,293.06
Transportation.....	34,757.08	998.25	35,755.33
Unemployment insurance.....	1,704.40	5.96	1,710.36
Workmen's compensation insurance.....	11,105.66	58.87	11,164.53
Mining claims and options abandoned—			
Capital cost, prior years.....	42,141.99	(42,141.99)	—
Development expenditures.....	—	(352,645.35)	(352,645.35)
Total per balance sheet—Statement I.....	<u>\$ 825,820.33</u>	<u>\$ (387,655.23)</u>	<u>\$438,165.10</u>

Statement III

**ADMINISTRATIVE EXPENDITURES  
FROM DATE OF INCORPORATION (NOVEMBER 26, 1947) TO DECEMBER 31, 1964**

	<i>Expenditures for the year ended December 31, 1964</i>	<i>Balance at December 31, 1964</i>
Advertising.....	\$ 3,331.61	\$ 557.00
Cost of share certificates.....	3,209.14	—
Depreciation of office furniture.....	6,320.26	748.92
Legal and audit fees.....	13,296.68	1,850.45
Listing and stock exchange fees.....	2,970.29	307.96
Management services—geological, engineering and administrative.....	57,000.00	12,000.00
Miscellaneous office expenses.....	8,733.41	1,256.81
Office rent.....	9,906.21	—
Office salaries.....	51,919.19	—
Printing and maps.....	10,349.30	247.68
Publicity and shareholders information.....	4,094.92	952.98
Securities registration fees and expenses.....	—	3,275.34
Stationery, postage and office supplies.....	5,405.50	278.15
Taxes, fees and licenses.....	3,372.65	123.73
Telephone and telegrams.....	6,127.08	59.80
Transfer agent's fees.....	23,252.40	1,769.28
Travelling.....	3,587.31	431.89
Workmen's compensation insurance.....	1,773.97	—
Interest and dividends received.....	(3,242.16)	(1,420.62)
<i>Less:</i> Cost applicable to mining claims abandoned.....	<u>\$211,407.76</u>	<u>\$ 22,439.37</u>
Total per balance sheet—Statement I.....	<u>\$211,407.76</u>	<u>\$ 76,254.86</u>
		<u>(\$53,815.49)</u>

Statement IV

**STATEMENT OF COST OF MINING CLAIMS AND OPTIONS  
ABANDONED, WRITE-OFFS AND NET LOSSES REALIZED  
ON DISPOSALS OF INVESTMENTS AND OTHER ASSETS  
AS AT DECEMBER 31, 1964**

	<i>From incorporation to December 31, 1963</i>	<i>For the year ended December 31, 1964</i>	<i>From incorporation to December 31, 1964</i>
Net loss (profit) on disposal of investments in shares of mining companies.....	\$274,104.82	\$ 11,099.44	\$285,204.26
Write-down of investments (Senvil Mines Limited).....	22,933.08	—	22,933.08
Profit on disposal of fixed assets.....	(16,031.04)	—	(16,031.04)
Cost of mining claims and options abandoned—			
Mining claims.....	—	253,721.80	253,721.80
Development expenditure.....	—	352,645.35	352,645.35
Administrative expenditure.....	—	76,254.86	76,254.86
	<u>\$281,006.86</u>	<u>\$693,721.45</u>	<u>\$974,728.31</u>

Note: Profit on sale of land and buildings at Chibougamau.

**QUEBEC SMELTING & REFINING LIMITED**  
(NO PERSONAL LIABILITY)

NUMBER  
OF SHARES

**INVESTMENTS IN LISTED SHARES OF MINING COMPANIES**

Schedule A
<i>Book value</i>
\$15,216.64
16,979.25
55,073.40
<hr/>
\$87,269.29
<hr/>
<i>Market value</i>
\$ 3,600.00
12,285.00
47,768.00
<hr/>
\$63,653.00

Baker Talc.....  
Chib-Kayrand Copper Mines.....  
Merrill Island Mining.....

Total per balance sheet—Statement I.....

Schedule B
<i>Book value</i>
\$ 13,500.00
13,665.64
3,450.37
483.76
7,500.00
34,923.73
6,863.14
20,000.00
5,125.00
2,356.52
1.00
<hr/>
—
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\$107,869.16

**INVESTMENTS IN UNLISTED SHARES OF MINING COMPANIES**

Schedule B
<i>Book value</i>
\$ 13,500.00
13,665.64
3,450.37
483.76
7,500.00
34,923.73
6,863.14
20,000.00
5,125.00
2,356.52
1.00
<hr/>
—
<hr/>
\$107,869.16

Chiboug Copper Corporation (pooled).....  
Cuvier Mines.....  
Gibson Mines.....  
Gibson Mines (pooled).....  
Grand Manitou Mines (pooled).....  
Lucky Lake Mines.....  
Lucky Lake Mines (pooled).....  
Packard Pershing Mines (pooled).....  
Ran-Lux Mines (pooled).....  
Scott Chibougamau Mines.....  
Senvil Mines.....  
Senvil Mines (pooled).....

Total per balance sheet—Statement I.....

**PROPERTIES HELD AS OF MARCH 18, 1965**

<i>Township</i>	<i>No. Claims</i>	<i>Acreage</i>	<i>Total Acreage</i>
<b>PROVINCE OF QUEBEC</b>			
Portland—Big Union—Lots 3, 4, 7, 8 & 9—Range VIII:			
Lots 6, 7 & 8, Range IX: Lot 1—Range X (owned)			
Little Union—Lots 3 & 4—Range VII W (owned)			
High Rock—Lots 5, 6, 7 & 8—Range VII W (under option)			
Cap Rock—Lots 1 & 2 (West Part)—Range VIII W (owned)			
McKenzie	5	200	
Roy	45	1857.835	
Urban	6	220	
#1931	15	600	
Lesperance	20	800	3677.835
<b>PROVINCE OF NEW BRUNSWICK</b>			
Bathurst Parish—			
Gloucester County, N.B.			
	30.6	1223.88	1223.88

**FERROX IRON LTD.**

(NO PERSONAL LIABILITY)

(Incorporated under the Quebec Mining Companies Act on January 29, 1964)

**BALANCE SHEET—DECEMBER 31, 1964**

**ASSETS**

**CURRENT ASSETS:**

Accounts receivable.....	\$ 25,532.68	
Inventory—raw materials, at cost.....	31,677.97	\$ 57,210.65
<b>FIXED ASSETS, at cost:</b>		
Land.....		
Building.....	\$ 1,050.00	
Machinery and equipment.....	54,799.14	
Furniture and fixtures.....	62,499.91	
	499.71	
	<hr/>	
	\$118,848.76	
	50,184.48	68,664.28
<i>Less: Received by grant on building, machinery and equipment (Note 1).....</i>		
<b>DEFERRED EXPENDITURES (Note 2):</b>		
Development (Statement II).....	\$126,831.47	
Administration (Statement II).....	6,490.03	
	<hr/>	
	\$133,321.50	
	56,671.33	76,650.17
	<hr/>	2,820.07
<i>Less: Received by grant (Note 1).....</i>		
<b>ORGANIZATION EXPENSES.....</b>		
	<hr/>	\$205,345.17

**LIABILITIES AND CAPITAL**

**CURRENT LIABILITIES:**

Bank overdraft.....	\$ 3,961.88	
Accounts payable—		
Quebec Smelting & Refining Limited (N.P.L.) (Note 3).....	\$ 27,000.00	
Sundry.....	24,373.29	\$ 51,373.29
	<hr/>	<hr/>

**CAPITAL:**

Capital stock—			
Authorized—1,000,000 shares of \$1 par value.....		\$1,000,000.00	
Issued and fully paid—			
For cash.....	200,010	\$100,000.00	
For net fixed assets and development of ferrite process.....	100,000	50,000.00	
	<hr/>	<hr/>	
	300,010	150,000.00	150,010.00

SIGNED ON BEHALF OF THE BOARD:

R. P. MILLS, *Director*.

J. O. SABOURIN, *Director*.

\$205,345.17

**FERROX IRON LTD.**  
(NO PERSONAL LIABILITY)

NOTES TO FINANCIAL STATEMENTS DECEMBER 31, 1964

1. The company has been awarded Government of Canada research and production grants of \$299,500.00 for the period ending May 1967. Funds provided to December 31, 1964 total \$106,855.81, whereof \$50,184.48 is for building, machinery and equipment and \$56,671.33 for development and administrative expenditures.
2. The company is committed to incur expenditures for the conduct of certain engineering studies on the processing and production of ferrite material at the rate of approximately \$85,000 per annum over a period of three years expiring May 15, 1967 aggregating a total of \$254,100. \$108,427 thereof had been discharged as at December 31, 1964.
3. The company is the guarantor of a \$30,000 bank loan of Quebec Smelting and Refining Limited (N.P.L.).
4. The company has negotiated a \$45,000 7% first mortgage loan from The Industrial Development Bank. The said loan, effective upon final approval by the bank and release of the funds, is not reflected in the accompanying balance sheet.

**AUDITORS' REPORT**

To the Directors of

**FERROX IRON LTD.**

(No Personal Liability):

We have examined the balance sheet of Ferrox Iron Ltd. (No Personal Liability) as at December 31, 1964 and have obtained all the information and explanations we have required. Our examination included a general review of the accounting procedures and such tests of accounting records and other supporting evidence as we considered necessary in the circumstances.

In our opinion, and according to the best of our information and the explanations given to us and as shown by the books of the company, the above balance sheet is properly drawn up so as to exhibit a true and correct view of the state of the affairs of the company as at December 31, 1964 and the results of its operations for the period ended on that date, in accordance with generally accepted accounting principles.

*MONTREAL, February 18, 1965.*

**PRICE WATERHOUSE & CO**  
*Chartered Accountants.*

DEVELOPMENT AND ADMINISTRATIVE EXPENDITURES FROM DATE OF INCORPORATION TO DECEMBER 31, 1964

**DEVELOPMENT:**

Incurred by predecessor company.....	\$ 47,318.91
Miscellaneous.....	\$ 2,383.40
Rent.....	744.00
Rental of equipment.....	175.35
Research (Statement III).....	46,521.84
Salaries.....	15,744.09
Supplies.....	1,840.37
Technical publications.....	1,011.40
Testing and consulting fees.....	2,934.62
Transportation.....	196.03
Travelling.....	7,961.46
Total per balance sheet—Statement I.....	<u>79,512.56</u>
	<u>\$126,831.47</u>

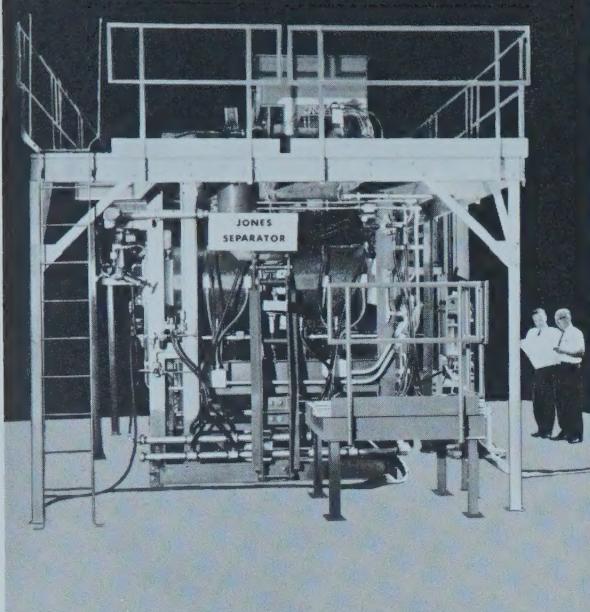
**ADMINISTRATIVE:**

Accounting and management services.....	5,400.00
Consulting fees.....	227.00
Cost of share certificates.....	238.85
Legal fees.....	12.00
Miscellaneous office expenses.....	133.41
Stationery, postage, and office supplies.....	257.07
Taxes, fees, and licences.....	117.50
Transfer agent's fees.....	104.20
Total per balance sheet—Statement I.....	<u>\$ 6,490.03</u>
	<u>\$ 6,490.03</u>

Statement III

RESEARCH EXPENDITURES  
FROM DATE OF INCORPORATION TO DECEMBER 31, 1964

Insurance.....	\$ 692.34
Light, heat, and power.....	589.29
Materials and supplies.....	16,121.92
Miscellaneous.....	249.77
Rental of equipment.....	375.48
Salaries.....	27,572.25
Transportation.....	175.89
Workman's compensation insurance.....	744.90
Total per Statement II.....	<u>\$46,521.84</u>



Jones Separator supplied to Climax Molybdenum Company, Colorado.

## 1964 — GROWTH OF QUEBEC SMELTING & REFINING LIMITED

(NO PERSONAL LIABILITY)

The growth and diversification of the Company during 1964 has been rapid and encouraging.

Some four years ago, our company had the foresight to acquire the rights in The Americas to the Jones High Intensity Wet Magnetic Mineral Separator which was then in its very early development stages. Quebec Smelting & Refining Limited undertook to pursue the development of the separator first in pilot plant size machines and then into commercial operation.

The Jones Separator represents one of the major breakthroughs made in mineral separation for the past 30 years.

Some 40 pilot plant machines are now in operation throughout the World. Five commercial machines are in operation. Two commercial plants are shortly to be installed. In addition, the building of an extremely large machine to treat 50 tons of ore per hour has just been commenced. This unit is one of the largest pieces of mineral separation equipment ever to be built. The largest current Jones Separator project in North America has been undertaken by our Company for Climax Molybdenum Company, a subsidiary of American Metals Climax. The machine has been installed and is in the process of being commissioned. The full size unit will treat 30 tons of ore per hour. It is anticipated that a number of such machines will be sold in 1965.

Our company undertook the development of the Jones Separator for

- a) general sale for mineral separation.
- b) exploitation of any unique processes developed.



New Company Plant at Prescott, Ontario.

Both of the above have been achieved and have resulted in the formation of two new subsidiaries of Quebec Smelting & Refining Limited.

The subsidiaries are

- 1) Ferrox Iron Ltd.
- 2) Ferro-Magnetics Ltd.

To house our activities a 3½ acre parcel of fully serviced land was purchased in Prescott, Ontario. A new company owned building has been erected and was occupied last August.

### Ferrox Iron Ltd.

During the course of extensive ore testing on the Jones machine it was found that it was possible to take conventional iron ore concentrate from Quebec and reduce the silica content to .03 per cent by a very inexpensive process. The possible use of such material was widespread. It was soon realized that such product has great potentiality.

### Ferrites

Ferrites are electronic ceramic magnets with a wide range of composition and very versatile uses.

Considerable quantities of iron oxide are used in their preparation. Such iron oxide is chemically produced and costs between \$200 and \$400 a ton. This chemically produced material can now be replaced by our physically prepared product at less than half

the cost. A project was thus initiated to explore the possibility of ferrite production. This was of interest to the Federal Government and two grants were obtained in a total amount of \$299,500. A new building was completed at Prescott in August and subsequently staffed. This project is proceeding extremely well and has tremendous potential. Included in our staff is one of the leading ferrite experts from the United States.

### **Superconcentrates**

It is now a simple matter with the Jones Separator to reduce the silica content to less than  $\frac{1}{2}$  of 1% silica. Although this is too high a silica content for ferrite, this material can be directly reduced to either iron powder or sponge iron. Negotiations are currently underway towards the establishment of a superconcentrate plant in Canada with a capacity of upwards of 1,000 tons per day.

Facilities at Prescott currently can produce 20 tons per day and can be readily expanded to 100 tons per day.

One order of 1,500 tons for test purposes for a large steel producer has already been received and is currently being filled.

### **Sponge Iron**

By pelletizing our superconcentrate, sponge iron can be made by a number of known processes. Due to removing the silica before reduction, the Blast Furnace can be by-passed. This will be a large tonnage market and a number of companies are seriously considering the production of sponge iron by this method.

### **Iron Powder**

In the production of iron powder the correct particle size of the end product is very important and often difficult to achieve. By our processing method of making superconcentrate we can provide the iron oxide in a particle size range so that, when reduced, the correct particle size of powder will result. All current iron powder producers are potential users of this raw material.

In addition to the sale of iron oxide to other powder producers, it is likely that a new iron powder plant will be constructed in which our company will be a participant.

### **Ore Testing Division**

The technical staff available can now cover a wide range of interests. Such staff includes metallurgy, mineral processing, ceramics, and electronics. Our laboratories are now equipped to conduct a wide range of mineral and metallurgical test programmes.

### **Ferro-Magnetics Ltd.**

This subsidiary company was formed to handle the magnetics business. In our new building at Prescott, Ontario, there are test facilities to evaluate the magnetic applications of our equipment for any metallurgical problem.

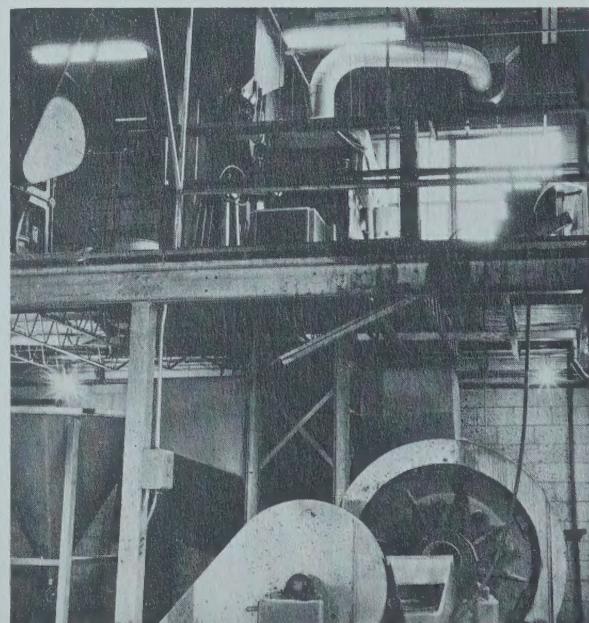
The large machine supplied to Climax Molybdenum Company in Colorado was built by Stearns-Roger Corporation of Denver under contract with Quebec Smelting.

Stearns-Roger Corporation is a very large and well known engineering company. It has built many large mining plants. This company realized the potential of the Jones Separator and an agreement has now been reached between Stearns-Roger and our company whereby Stearns-Roger has exclusive manufacturing and sales rights to the large separators in The Americas. The agreement gives our company a guaranteed income plus royalties. We will conduct test programmes as before which will also be a continual source of income. Quebec Smelting will continue to assemble and sell separators of a capacity of 3 tons per hour or less.

Our work in the field of magnetism has achieved world-wide recognition. This is demonstrated by our acquiring representation in North America of Rapid Magnetic Limited's products. Rapid Magnetic Limited is a world leader in the manufacture of all kinds of magnetic equipment and have over 60 years of experience.

With the addition of Rapid Magnetic's line, Ferro-Magnetics Ltd. can now offer a complete range of magnetic equipment.

Part of Iron Oxide circuit.



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